

# Mineral Industry Surveys

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## MOLYBDENUM IN OCTOBER 2005

Domestic production of molybdenum in concentrate in October 2005 was about 3% more than that of the previous month and was about 41% more than that of October 2004, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,930 metric tons (t) at the beginning of 2005 and about 6,980 t at the end of October.

According to Ryan's Notes (2005b), the October monthly average prices for U.S. ferromolybdenum (FeMo) ranged from \$36.563 to \$37.563 per pound of molybdenum content, compared with \$36.278 to \$37.500 in September. European FeMo monthly averages ranged from \$76.750 to \$78.500 per kilogram of molybdenum content in October as compared with \$82.222 to \$84.000 in September. In October, worldwide molybdenum oxide (MoO<sub>3</sub>) prices ranged from \$32.188 to \$33.125 per pound versus \$33.222 to \$34.222 in September.

Phelps Dodge Mining Company stated that its study of the possible restarting of the idled Climax Mine was ongoing; however, resumption of mining would not occur before 2008. If reopened, the Climax Mine could produce between 4,500 to 9,000 metric tons per year (t/yr) (10 to 20 million pounds per year) of molybdenum. Phelps Dodge expected to boost capacity at its Henderson Mine to about 18,000 t/yr (40 million pounds per year) by mid-2006 from its present capacity of about 14,500 t/yr (32 million pounds per year). Phelps Dodge expected to produce about 29,500 t (65 million pounds) of molybdenum in 2005, about 10% more than that in 2004 (Ryan's Notes, 2005a).

Western molybdenite concentrate production since mid-2004 has not caught up with increased demand because of slow response by roasters to ramp up production and insufficient roaster capacity, according to industry sources. Roasters didn't reach full capacity operation until the first quarter of 2005, which resulted in an accumulation of unroasted concentrates.

While more than 4,000 t of unroasted concentrates has been exported to China in 2005, this material has not returned to the world market as molybdenum products because of reduced molybdenum mine production in China and increased Chinese demand. Insufficient Western roaster capacity and reduced Chinese molybdenum exports continued to support high molybdenum prices (Platts Metals Week, 2005a).

Idaho General Mines Inc. prepared mining plans for submission to the U.S. Bureau of Land Management envisioning an initial 16,000-t/yr (35-million-pounds-per-year) operation at its Mt. Hope project. Production rate was planned to average about 11,000 t/yr over the life of the mine. Idaho General also planned to build a new roaster at the site with about a 17,500-t/yr (38.5-million-pounds-per-year) capacity. The roaster would have about 6,500 t/yr (14.5 million pounds per year) in excess capacity for toll roasting concentrates from outside sources (Platts Metals Week, 2005b).

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, stocks of molybdenum material in September and October 2005, and trade data for August and September 2005.

## References Cited

- Platts Metals Week, 2005a, Molybdenum roaster bottleneck to continue into 2006: Platts Metals Week, v. 76, no. 40, October 3, p. 10.  
Platts Metals Week, 2005b, Mt Hope targets 35-mil lb/yr Mo output: Platts Metals Week, v. 76, no. 42, October 17, p. 7.  
Ryan's Notes, 2005a, PD bullish on moly demand: Ryan's Notes, v. 11, no. 44, October 31, p. 1.  
Ryan's Notes, 2005b, [untitled]: Ryan's Notes, v. 11, no. 45, November 7, p. 10.

TABLE 1  
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004		2005		
	January- December	January- October	September	October	January- October
Production	41,500	33,500	4,870 <sup>r</sup>	5,000	47,800
Shipments: <sup>2</sup>					
Domestic	30,700	25,200	3,680 <sup>r</sup>	3,430	32,200
Export	11,200	8,380	1,550	1,540	15,600

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>As reported by producers.

TABLE 2  
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004		2005		
	January- December	January- October	September	October	January- October
Gross production	66,300	53,800	6,410 <sup>r</sup>	6,740	68,500
Internal consumption <sup>2</sup>	42,000	33,800	3,900	4,330	43,500
Gross shipments	39,300	32,500	3,740	4,140	39,700

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3  
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS<sup>1</sup>

(Kilograms, contained molybdenum)

End use	Molybdc oxides	Ferro molyb- denum <sup>2</sup>	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2005, September:						
Steel:						
Carbon	10,400	W	--	--	W	10,400
High-strength low-alloy	23,700	9,370	--	--	11,300	44,400
Stainless and heat-resisting	170,000 <sup>r</sup>	69,800 <sup>r</sup>	--	W	6,510	246,000 <sup>r</sup>
Full alloy	153,000	188,000	--	--	1,510	343,000
Tool	50,500	W	--	--	--	50,500
Total	407,000 <sup>r</sup>	268,000 <sup>r</sup>	--	W	19,400	694,000 <sup>r</sup>
Cast irons (gray, malleable, and ductile iron)	W	8,470	--	--	763	9,240
Superalloys	118,000	W	--	(3)	126,000	245,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	2	3,200	--	--	--	3,210
Mill products made from metal powder <sup>4</sup>	--	--	--	--	183,000	183,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,050	1,050
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	11,200	11,200
Other	1,090	30,900	74,700	1,840	16,800	125,000
Grand total	604,000 <sup>r</sup>	310,000	74,700	1,840	358,000	1,350,000
Stocks, September 30, 2005	476,000 <sup>r</sup>	212,000	4,380	20,400	851,000	1,560,000 <sup>r</sup>
2005, October:						
Steel:						
Carbon	13,600	W	--	--	W	13,600
High-strength low-alloy	35,200	8,210	--	--	11,300	54,800
Stainless and heat-resisting	158,000	67,700	--	W	6,510	233,000
Full alloy	162,000	205,000	--	--	1,510	369,000
Tool	56,100	W	--	--	--	56,100
Total	425,000	281,000	--	W	19,400	726,000
Cast irons (gray, malleable, and ductile iron)	W	8,590	--	--	763	9,350
Superalloys	116,000	W	--	(3)	125,000	242,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	136	1,170	--	--	--	1,310
Mill products made from metal powder <sup>4</sup>	--	--	--	--	181,000	181,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,050	1,050
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,800	10,800
Other	1,090	31,700	73,500	1,840	16,800	125,000
Grand total	620,000	322,000	73,500	1,840	355,000	1,370,000
Stocks, October 31, 2005	472,000	215,000	3,550	20,000	854,000	1,560,000

<sup>1</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Includes calcium molybdate.

<sup>4</sup>Included in "Other" of the "Superalloys" category.

<sup>5</sup>Includes ingot, wire, rod, and sheet.

<sup>6</sup>Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4  
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES  
(including roasted concentrate), BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2004		2005		
	January-December	January-September	August	September	January-September
Australia	30,500	19,000	9,470	--	110,000
Austria	1,310,000	1,310,000	648	--	3,230
Belgium	6,470,000	5,370,000	3,140,000	629,000	6,850,000
Brazil	31,000	21,700	--	591	66,700
Canada	1,370,000	1,050,000	178,000	116,000	2,980,000
Chile	1,380,000	1,380,000	--	--	111,000
China	36,000	36,000	633,000	339,000	4,020,000
Costa Rica	26,700	26,000	--	--	3,810
India	430	430	--	1,630	38,900
Italy	--	--	--	--	35,100
Japan	5,730,000	5,370,000	90,200	125,000	1,590,000
Korea, Republic of	95,200	85,800	--	--	11,400
Mexico	3,910,000	2,830,000	386,000	77,000	2,030,000
Netherlands	14,100,000	12,000,000	2,060,000	985,000	13,400,000
Sweden	38,200	--	--	--	4,630
Taiwan	19,200	18,600	--	--	3,600
United Kingdom	8,910,000	6,940,000	832,000	525,000	5,430,000
Other	2,770,000	2,540,000	153,000	--	749,000
Total	46,200,000	39,000,000	7,490,000	2,800,000	37,500,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2004		2005		
	January-December	January-September	August	September	January-September
Australia	1,090	1,090	--	--	--
Brazil	--	--	--	198	16,800
Canada	870,000	701,000	89,000	82,300	1,410,000
France	10,100	--	--	--	--
Indonesia	381	--	--	--	5,930
Mexico	33,700	33,700	4,260	25,400	34,600
Netherlands	--	--	--	--	33,300
Sweden	9,150	--	--	--	--
United Kingdom	491	491	--	--	--
Total	925,000	736,000	93,200	108,000	1,500,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

Material	January-December 2004			September 2005			January-September 2005		
	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)
Ore and concentrates roasted	7,580,000	4,710,000	\$133,000	836,000	528,000	\$14,100	6,320,000	3,970,000	\$260,000
Ore and concentrates other	9,330,000	4,070,000	135,000	887,000	409,000	24,500	10,300,000	4,730,000	330,000
Molybdenum chemicals:									
Oxides and hydroxides	822,000	NA	15,800	38,000	NA	1,600	972,000	NA	31,900
Molydates of ammonium	1,940,000	1,330,000	18,400	94,800	56,400	1,880	3,030,000	2,010,000	36,000
Molydates (all others)	254,000	116,000	1,430	NA	NA	NA	65,500	17,000	941
Molybdenum orange	1,030,000	NA	4,760	109,000	NA	444	704,000	NA	3,570
Ferromolybdenum	8,310,000	5,310,000	158,000	551,000	355,000	24,400	4,830,000	3,080,000	215,000
Molybdenum powders	139,000	95,200	4,930	4,100	3,810	453	62,000	50,600	5,530
Molybdenum unwrought	151,000	151,000	3,520	10,000	9,980	553	64,500	64,300	3,760
Molybdenum waste and scrap	454,000	415,000	10,200	27,400	24,100	1,570	381,000	364,000	26,800
Molybdenum wire	20,500	NA	2,010	1,480	NA	230	16,400	NA	2,540
Molybdenum other	132,000	NA	13,700	5,450	NA	1,030	119,000	NA	15,800
Total	30,200,000	16,200,000	501,000	2,560,000	1,390,000	70,800	26,800,000	14,300,000	932,000

NA Not available.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Customs value.

Source: U.S. Census Bureau.